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EXAMINER JERABEK, KELLY L				
ART UNIT 2622		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/067,463

Applicant(s)

ORBOUBADIAN, VAHID

Examiner

KELLY L. JERABEK

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 26-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5-13 and 26-35 is/are rejected.
- 7) ☒ Claim(s) 2-4 and 14-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Response to Arguments***

Applicant's arguments, see appeal brief pages 9-14, filed 12/12/2008, with respect to the rejection(s) of claim(s) 1, 8 and 26 under 35 U.S.C. 103(a) as being unpatentable over Narayanaswami et al. US 2003/0011684 in view of Inoue et al. US 6,273,535 and further in view of Safai US 6,642,956 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of 35 U.S.C. 103(a) as being unpatentable over Narayanaswami et al. US 2003/0011684 in view of Bell et al. US 2002/0071049 and further in view of Werner WO 00/56058.

Re claims 1, 8 and 26, Narayanaswami discloses a method of embedding camera information and image capture related information in a digital form of an image, comprising: receiving information on camera characteristics suitable to enhance image reproduction (parameters such as camera location, image mode, etc.) (page 4, paragraph 43); receiving camera setting information (focal length, focus distance, frame number, image quality, flash status, light meter readings, etc.) related to a first captured digitized image (page 3, paragraphs 34-35); generating an encryption key based at least in part on the camera characteristics (page 5, paragraph 46); embedding a watermark in said first captured digitized image, wherein the watermark contains at least a portion of the information on

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the camera characteristics and at least a portion of the camera setting information related to said first captured digitized image; and encrypting the watermark using the encryption key (page 4, paragraph 42 - page 5, paragraph 48). Additionally, the Narayanaswami reference states that it is well known to watermark and record parameters such as camera location, camera velocity, image mode, image quality, compression, date, time, exposure duration, **aperture**, light meter reading, flash status, lens focal length, auto focus distance, photographer and voice annotation with each image (page 4, paragraph 43). Narayanaswami further states that the parameters listed are not illustrative of every parameter that may be watermarked and that one of ordinary skill in the art could envision additional parameters that may be recorded and utilized in accordance with the teachings of the invention. However, although the Narayanaswami reference discloses all of the above limitations it fails to specifically state that any of the camera characteristics capable of being watermarked are static camera characteristics suitable to enhance image reproduction or that the aperture of the camera is a fixed aperture.

Bell discloses exposure control for a digital camera. Bell discloses that it is well known in the digital imaging art for digital cameras to include a fixed non-variable aperture for use in low-cost consumer cameras (page 2, paragraph 23). Therefore, it would have been obvious for one skilled in the art to have been motivated to include a fixed aperture as disclosed by Bell in the digital camera capable of watermarking image parameters including the camera aperture value as disclosed by Narayanaswami. Doing so would provide a means for providing

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a low-cost digital camera that is capable of attaching information regarding static camera characteristics (aperture characteristic) in order to perform further processing on captured images. Although the combination of the Narayanaswami and Bell references discloses all of the limitations above it fails to specifically disclose watermarking a first static camera characteristic suitable to identify a camera that is the source of the image includes embedding unique single camera characteristics such as the serial number of a camera.

Werner WO 00/56058 discloses a watermarking system. Werner states that it is well known in the art for a camera to embed a watermark into an image signal where the watermark indicates a serial number corresponding to the camera capturing the image (page 32, lines 19-26). Therefore, it would have been obvious for one skilled in the art to have been motivated to attach user specific and camera specific information such as a camera serial number as disclosed by Werner to image data captured by the digital camera system disclosed by the combination of the Narayanaswami and Bell references. Doing so would provide a means for easily verifying and authenticating that an image was captured by a specific camera or camera user.

Claim Objections

Claim 1 is objected to because of the following informalities: In lines 9-10 and lines 12-13 of claim 1, it is unclear which first static characteristic the term "the first static camera characteristic" is referring to because the claim includes a

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first static camera characteristic suitable to enhance image reproduction and a first static camera characteristic suitable to identify a single camera.

Appropriate correction is required.

Claim 2 is objected to because of the following informalities: In line 1 of claim 2, it is unclear which first static characteristic the term "the first static camera characteristic" is referring to because claim 1 includes a first static camera characteristic suitable to enhance image reproduction and a first static camera characteristic suitable to identify a single camera. Appropriate correction is required.

Claim 3 is objected to because of the following informalities: In line 1 of claim 3, it is unclear which first static characteristic the term "the first static camera characteristic" is referring to because claim 1 includes a first static camera characteristic suitable to enhance image reproduction and a first static camera characteristic suitable to identify a single camera. Appropriate correction is required.

Claim 4 is objected to because of the following informalities: In line 1 of claim 4, it is unclear which first static characteristic the term "the first static camera characteristic" is referring to because claim 1 includes a first static camera characteristic suitable to enhance image reproduction and a first static

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camera characteristic suitable to identify a single camera. Appropriate correction is required.

Claim 8 is objected to because of the following informalities: In line 10 of claim 8, it is unclear which first static characteristic the term "the first static camera characteristic" is referring to because the claim includes a first static camera characteristic for enhancing image reproduction and a first static camera characteristic for identifying a single camera. Appropriate correction is required.

Claim 14 is objected to because of the following informalities: In lines 1-2 of claim 14, it is unclear which first static characteristic the term "said first static camera characteristic" is referring to because claim 8 includes a first static camera characteristic suitable to enhance image reproduction and a first static camera characteristic suitable to identify a single camera. Appropriate correction is required.

Claim 15 is objected to because of the following informalities: In lines 1-2 of claim 15, it is unclear which first static characteristic the term "said first static camera characteristic" is referring to because claim 8 includes a first static camera characteristic suitable to enhance image reproduction and a first static camera characteristic suitable to identify a single camera. Appropriate correction is required.

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Claim 16 is objected to because of the following informalities: In lines 1-2 of claim 16, it is unclear which first static characteristic the term "said first static camera characteristic" is referring to because claim 8 includes a first static camera characteristic suitable to enhance image reproduction and a first static camera characteristic suitable to identify a single camera. Appropriate correction is required.

Claim 26 is objected to because of the following informalities: In line 13 of claim 26, it is unclear which first static characteristic the term "the first static characteristic" is referring to because the claim includes a first static camera characteristic for enhancing image reproduction and a first static camera characteristic for identifying a single camera. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-8, 10-13 and 26-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayanaswami et al. US 2003/0011684 in view of Bell et al. US 2002/0071049 and further in view of Werner WO 00/56058.

Re claim 1, Narayanaswami discloses a method of embedding camera information and image capture related information in a digital form of an image, comprising: receiving information on camera characteristics suitable to enhance image reproduction (parameters such as camera location, image mode, etc.) (page 4, paragraph 43); receiving camera setting information (focal length, focus distance, frame number, image quality, flash status, light meter readings, etc.) related to a first captured digitized image (page 3, paragraphs 34-35); generating an encryption key based at least in part on the camera characteristics (page 5, paragraph 46); embedding a watermark in said first captured digitized image, wherein the watermark contains at least a portion of the information on the camera characteristics and at least a portion of the camera setting information related to said first captured digitized image; and encrypting the watermark using the encryption key (page 4, paragraph 42 - page 5, paragraph 48). Additionally, the Narayanaswami reference states that it is well known to watermark and record parameters such as camera location, camera velocity, image mode, image quality, compression, date, time, exposure duration, **aperture**, light meter reading, flash status, lens focal length, auto focus distance, photographer and voice annotation with each image (page 4, paragraph 43). Narayanaswami further states that the parameters listed are not illustrative of every parameter

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that may be watermarked and that one of ordinary skill in the art could envision additional parameters that may be recorded and utilized in accordance with the teachings of the invention. However, although the Narayanaswami reference discloses all of the above limitations it fails to specifically state that any of the camera characteristics capable of being watermarked are static camera characteristics suitable to enhance image reproduction or that the aperture of the camera is a fixed aperture.

Bell discloses exposure control for a digital camera. Bell discloses that it is well known in the digital imaging art for digital cameras to include a fixed non-variable aperture for use in low-cost consumer cameras (page 2, paragraph 23). Therefore, it would have been obvious for one skilled in the art to have been motivated to include a fixed aperture as disclosed by Bell in the digital camera capable of watermarking image parameters including the camera aperture value as disclosed by Narayanaswami. Doing so would provide a means for providing a low-cost digital camera that is capable of attaching information regarding static camera characteristics (aperture characteristic) in order to perform further processing on captured images. Although the combination of the Narayanaswami and Bell references discloses all of the limitations above it fails to specifically disclose watermarking a first static camera characteristic suitable to identify a camera that is the source of the image includes embedding unique single camera characteristics such as the serial number of a camera.

Werner WO 00/56058 discloses a watermarking system. Werner states that it is well known in the art for a camera to embed a watermark into an image

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signal where the watermark indicates a serial number corresponding to the camera capturing the image (page 32, lines 19-26). Therefore, it would have been obvious for one skilled in the art to have been motivated to attach user specific and camera specific information such as a camera serial number as disclosed by Werner to image data captured by the digital camera system disclosed by the combination of the Narayanaswami and Bell references. Doing so would provide a means for easily verifying and authenticating that an image was captured by a specific camera or camera user.

Re claim 5, Narayanaswami states that the camera setting information includes information related to the flash intensity used to capture the digitized image (page 3, paragraph 34).

Re claim 6, Narayanaswami states that information related to the ambient light present when the image was captured is included in the watermark (page 3, paragraph 34).

Re claim 7, Narayanaswami states that a number of dynamically measured camera characteristics are included in the watermark (page 3, paragraph 34).

Re claim 8, Narayanaswami discloses a digital camera system, comprising: an imager (page 3, paragraph 32); camera characteristics suitable to

enhance image reproduction (parameters such as camera location, image mode, aperture, etc.) (page 4, paragraph 43); a first variable camera setting; (focal length, focus distance, frame number, image quality, flash status, light meter readings, etc.) (page 3, paragraphs 34-35); a watermark generator used to embed in the form of a watermark at least one of said camera characteristics and said first variable camera setting information in an image captured by the camera; and a key generator configured to generate an encryption key used to encrypt a watermark (page 4, paragraph 42 - page 5, paragraph 48).

Narayanaswami further states that the parameters listed are not illustrative of every parameter that may be watermarked and that one of ordinary skill in the art could envision additional parameters that may be recorded and utilized in accordance with the teachings of the invention. However, although the Narayanaswami reference discloses all of the above limitations it fails to specifically state that any of the camera characteristics capable of being watermarked are static camera characteristics suitable to enhance image reproduction or that the aperture of the camera is a fixed aperture.

Bell discloses exposure control for a digital camera. Bell discloses that it is well known in the digital imaging art for digital cameras to include a fixed non-variable aperture for use in low-cost consumer cameras (page 2, paragraph 23). Therefore, it would have been obvious for one skilled in the art to have been motivated to include a fixed aperture as disclosed by Bell in the digital camera capable of watermarking image parameters including the camera aperture value as disclosed by Narayanaswami. Doing so would provide a means for providing

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a low-cost digital camera that is capable of attaching information regarding static camera characteristics (aperture characteristic) in order to perform further processing on captured images. Although the combination of the Narayanaswami and Bell references discloses all of the limitations above it fails to specifically disclose watermarking a first static camera characteristic suitable to identify a camera that is the source of the image includes embedding unique single camera characteristics such as the serial number of a camera.

Werner WO 00/56058 discloses a watermarking system. Werner states that it is well known in the art for a camera to embed a watermark into an image signal where the watermark indicates a serial number corresponding to the camera capturing the image (page 32, lines 19-26). Therefore, it would have been obvious for one skilled in the art to have been motivated to attach user specific and camera specific information such as a camera serial number as disclosed by Werner to image data captured by the digital camera system disclosed by the combination of the Narayanaswami and Bell references. Doing so would provide a means for easily verifying and authenticating that an image was captured by a specific camera or camera user.

Re claim 10, the watermark disclosed by Narayanaswami is visually imperceptible (page 5, paragraph 45).

Re claims 11-13, Narayanaswami states that the variable camera settings to be watermarked consist of shutter speed, aperture setting, flash setting as well as other camera settings (page 4, paragraph 43).

Re claim 26, see claim 1. Narayanaswami also states that the digitized image and the data set may be transmitted (page 4, paragraph 41).

Re claims 27, 30 and 33, Werner states that a unique single camera characteristic may include an image capture device serial number (page 32, lines 19-26).

Re claims 28-29, 31-32 and 34-35, Narayanaswami states the image capture information to be appended to image data may include information about the user who has taken the image such as a user identification (photographer text) (page 4, paragraph 43).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Narayanaswami et al. US 2003/0011684 in view of Bell et al. US 2002/0071049 in view of Werner WO 00/56058 and further in view of Isnardi et al. US 6,037,984.

Re claim 9, the combination of the Narayanaswami, Bell and Werner references discloses all of the limitations of claim 8 above. However, Narayanaswami states that the stamping/watermarking information is invisible.

Isnardi states that digital watermarks are well known in the art. Isnardi states that although watermarks are generally invisible, in some application, it is desirable to produce a visible watermark that can be removed by an authorized image decoder (col. 1, lines 11-25). Therefore, it would have been obvious for one skilled in the art to have been motivated to include a visually perceptible watermark as disclosed by Isnardi in the camera capable of watermarking camera parameters into digital image data as disclosed by the combination of Narayanaswami, Bell and Werner. Doing so would provide a means for visibly displaying a watermark on an image and only allowing it to be removed by an authorized image decoder (Isnardi: col. 1, lines 21-25).

Allowable Subject Matter

Claims 2-4 and 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Re claim 2, the prior art fails to teach or suggest, "A method of embedding camera information and image capture related information in a digital form of an image, comprising: receiving information on a first static camera characteristic suitable to enhance image reproduction; receiving information on a first static camera characteristic suitable to identify a single camera that is the source of the image by embedding unique single camera characteristics; receiving camera setting information related to a first captured digitized image; generating an encryption key based at least in part on the first static camera characteristic; embedding a watermark in said first captured digitized image, wherein the watermark contains at least a portion of the information on the first static characteristic and at least a portion of the camera setting information related to said first captured digitized image; and encrypting the watermark using the encryption key, **wherein the first static camera characteristic is a camera image sensor bad pixel characteristic**".

Re claim 3, the prior art fails to teach or suggest, "A method of embedding camera information and image capture related information in a digital form of an image, comprising: receiving information on a first static camera characteristic suitable to enhance image reproduction; receiving information on a first static camera characteristic suitable to identify a single camera that is the source of the image by embedding unique single camera characteristics; receiving camera setting information related to a first captured digitized image; generating an

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encryption key based at least in part on the first static camera characteristic; embedding a watermark in said first captured digitized image, wherein the watermark contains at least a portion of the information on the first static characteristic and at least a portion of the camera setting information related to said first captured digitized image; and encrypting the watermark using the encryption key, **wherein the first static camera characteristic is related to a sensor current value**".

Re claim 4, the prior art fails to teach or suggest, "A method of embedding camera information and image capture related information in a digital form of an image, comprising: receiving information on a first static camera characteristic suitable to enhance image reproduction; receiving information on a first static camera characteristic suitable to identify a single camera that is the source of the image by embedding unique single camera characteristics; receiving camera setting information related to a first captured digitized image; generating an encryption key based at least in part on the first static camera characteristic; embedding a watermark in said first captured digitized image, wherein the watermark contains at least a portion of the information on the first static characteristic and at least a portion of the camera setting information related to said first captured digitized image; and encrypting the watermark using the encryption key, **wherein the first static camera characteristic is related to a camera image sensor sensitivity**".

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Re claim 14, the prior art fails to teach or suggest, "A digital camera system, comprising: an imager; a first static camera characteristic associated with the imager in regard of enhancing image reproduction; a first static camera characteristic associated with the imager in regard of identifying a single camera that is the source of an image by embedding unique single camera characteristics; a first variable camera setting; a watermark generator used to embed in the form of a watermark at least one of said first static camera characteristic and said first variable camera setting information in an image captured by the camera; and a key generator configured to generate an encryption key used to encrypt the watermark, **wherein said first static camera characteristic is related to an imager current**".

Re claim 15, the prior art fails to teach or suggest, "A digital camera system, comprising: an imager; a first static camera characteristic associated with the imager in regard of enhancing image reproduction; a first static camera characteristic associated with the imager in regard of identifying a single camera that is the source of an image by embedding unique single camera characteristics; a first variable camera setting; a watermark generator used to embed in the form of a watermark at least one of said first static camera characteristic and said first variable camera setting information in an image captured by the camera; and a key generator configured to generate an encryption key used to encrypt the watermark, **wherein said first static camera characteristic is related to defective pixels associated with the imager**".

Re claim 16, the prior art fails to teach or suggest, "A digital camera system, comprising: an imager; a first static camera characteristic associated with the imager in regard of enhancing image reproduction; a first static camera characteristic associated with the imager in regard of identifying a single camera that is the source of an image by embedding unique single camera characteristics; a first variable camera setting; a watermark generator used to embed in the form of a watermark at least one of said first static camera characteristic and said first variable camera setting information in an image captured by the camera; and a key generator configured to generate an encryption key used to encrypt the watermark, **wherein said first static camera characteristic is gamma information**".

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is (571) 272-7312. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached at (571) 272-7593. The fax phone number for submitting all Official communications is 703-872-9306. The fax phone number for submitting informal communications such as drafts,

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proposed amendments, etc., may be faxed directly to the Examiner at (571) 273-7312.

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/Kelly L. Jerabek/

Examiner, Art Unit 2622